

REMARKS

Claims 51-94 are pending in the application, with claims 51-88 having been allowed, claim 89 rejected, and claims 90-94 objected to. In this Response, various claims have been amended without changing the scope thereof to overcome the examiner's various objections as to lack of proper antecedent basis, thereby place the application in condition for allowance or, in the case of claim 89 and claims dependent therefrom, at least in better form for consideration on appeal. With respect to claim 89, applicants believe that the finality of the rejection is premature and request the examiner to withdrawal the finality of the Office action and issue a new action responsive to applicants traversal below, or in the alternative to withdraw the rejection of the finally rejected claim in view of applicants traversal below and issue a Notice of Allowance.

Status of the Drawings

The examiner's approval of proposed drawing corrections and acceptance of the filed drawings is noted with appreciation.

Foreign Priority Claim

The examiner's acknowledgment of applicant's foreign priority claim is noted with appreciation. The examiner indicated that no certified copy of the priority document has yet been received from the International Bureau in this national state application. Further to applicants understanding of section 371 practice, there is no requirement that the Danish priority document be submitted to the US Patent Office either by the International Bureau or by applicants. As applicants understand the situation, the PCT application was filed in the Danish Receiving Office claiming priority of the earlier filed Danish application. It is believed that the Danish Receiving Office would have prepared and transmitted the Danish priority document to the International Bureau. Accordingly, a copy of the Danish priority document should be available from the International Bureau. Unlike a section 119 priority claim, applicants do not believe that submission of the Danish priority document to

the US Patent Office is appropriate. Applicants would appreciate any further views of the examiner on this question.

Explanation of the Amendment

The examiner objected to claim 54 on lack of proper antecedent basis and suggested that the phrase "the aspheric correcting element" be changed to –the aberration correcting element–. Applicants appreciate the examiner's suggestion and has amended the claims in accordance therewith.

The examiner objected to claims 58 and 59 on lack of proper antecedent basis and suggested that the phrase "the entrance aperture" be changed to –the at least one entrance aperture–. Applicants appreciate the examiner's suggestion and has amended the claims in accordance therewith.

The examiner objected to claim 60 on lack of proper antecedent basis and suggested that the phrase "diffractive optical element" be changed to –the first diffractive optical element–. Applicants appreciate the examiner's suggestion and has amended the claims in accordance therewith.

The examiner objected to claims 73-76, 80, 82, 84, 86 and 88 on lack of proper antecedent basis and suggested that the phrase "the object" be changed to –the at least one object–. Applicants appreciate the examiner's suggestion and has amended the claims in accordance therewith.

The examiner further objected to claim 76 on lack of proper antecedent basis and suggested that the phrase "the body" be changed to –the transparent body–. Applicants appreciate the examiner's suggestion and has amended the claims in accordance therewith.

The examiner further objected to claim 88 on lack of proper antecedent basis and suggested that the phrase "the at least one entrance aperture" be changed to –the at least

one input means-. Applicants appreciate the examiner's suggestion and has amended the claims in accordance therewith.

The examiner objected to claim 89 on lack of proper antecedent basis and suggested that the phrase "the body" be changed to -the transparent body-. Applicants appreciate the examiner's suggestion and has amended the claims in accordance therewith. Applicants have also noticed that the antecedent basis for the term "divergent, separated wavelength components" lacks the word "divergent" and has also corrected this lack of proper antecedent basis.

The examiner further objected to claim 91 and suggested that the phrase "the signal light" be changed to -reference signal light-. Applicants appreciate the examiner's suggestion but respectfully submits that such a change would alter the meaning of the claim. Applicants wish to amend claim 91 by deleting the unnecessarily wordy and possibly confusing phrase "reference light propagating from the object to the entrance aperture entering the aperture as the signal light" and substituting the phrase "to produce the signal light." The amended step simply and clearly reads "illuminating the object with reference light to produce the signal light." The substituted language means the same as the prior language but is much simpler and lacks any ambiguity. The term "the signal light" has clear antecedent basis in line 3 of claim 89, wherein the imputing step recites "signal light from the object."

It will be appreciated that all of these amendments are merely amendments as to form that do not change the scope of any of the amended claims or raise any new issues for consideration. As the amendment places the application in condition for allowance or, in the case of claim 89 and claims dependent therefrom, at least in better form for consideration on appeal, the examiner is respectfully requested to admit the amendment.

The Finality of the Office Action Must be Withdrawn

This Office action was made final on the grounds that the applicants' amendment necessitated the new grounds of rejection. Applicants disagree. The only change made to

claim 89 by applicants in their August 25th Response was to change “using a focusing reflector on the second side of the body” to “using a focusing reflector on the body”. This amendment might have necessitated the new grounds of rejection if the combination of references taught a focusing reflector on a part of the body other than a second side of the body. However, the examiner in fact interpreted both of the references to disclose a focusing reflector on a second side of the body! With respect to Bittner, the examiner writes “In addition, the convex shape of the transparent body with the concave shape of the grating suggests focusing (see sole Figure).” Upon examination of Figure 1, it will be observed that the concave grating 1 is on a different side (perhaps a second side) of the body than the entrance slit 4 (perhaps the first side). With respect to Machler et al., the examiner writes “reflection grating that is concave demonstrates the focusing of the reflection grating on to a detector (Figs. 3c and 4a).” Upon examination of Figure 3c (Figure 4a is similar), it will be observed that the curved grating 33 is on a different side (perhaps a second side) of the body 31 than the entry slit 34 (perhaps the first side). There is absolutely no doubt that applicants amendment did not necessitate the rejection; hence the finality of the Office action must be withdrawn.

Claim 89 is Not Obvious Over Bittner in view of Machler et al.

Claim 89 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Bittner (U.S. Patent 5,159,404) in view of Machler et al. (U.S. Patent 4,838,645). The rejection is traversed.

Fundamental to the establishment of a *prima facie* case of obviousness is the requirement that the prior art reference, or combination of prior art references, must teach or suggest all the claim limitations. MPEP § 2142. Applicants respectfully traverse the rejection since Bittner in view of Machler et al. fails to teach or suggest all of the claim limitations.

Amended claim 89 is directed to method of measuring spectral information of light from an object. The method includes two steps of particular relevancy to this traversal. The first such step is diffracting divergent signal light (this light propagates from the entrance aperture on a first side of the transparent body to a diffractive element on a second side of

the body) with the diffractive element into divergent, separated wavelength components. The second such step is reflectively focusing these divergent, separated wavelength components to an exit face using a focusing reflector. It will be appreciated that the diffracting and reflectively focusing steps are cooperatively associated through the "divergent, separated wavelength components" - that is, the divergent, separated wavelength components are an output of the diffracting step and an input to the reflectively focusing step.

Applicants respectfully contend that the proposed combination of the Bittner and Machler et al. references fails to teach or suggest all steps of the claimed method, at least insofar as the combination does not teach a diffracting step cooperating with a reflectively focusing step through "divergent, separated wavelength components."

Consider the diffracting step. Bittner does not teach diffracting into divergent, separated wavelength components. Bittner shows divergent signal light emerging from an entrance aperture 4 to a diffractive element 1 on a second side 21 of the transparent body 2. However, because Bittner's diffractive element is curved, separated wavelength components emerging from the diffractive element are converging, not diverging. The convergence allows the light to come to a focus at the detector unit 3. Accordingly, Bittner fails to disclose the diffracting step as set forth in claim 89.

Consider the refractively focusing step. Bittner does not teach reflectively focusing divergent, separated wavelength components. As seen in Bittner's sole figure, divergent signal light emerging from the entrance aperture 4 arrives at the diffractive element 1 and converging separated wavelength components leave the diffractive element 1. There are no divergent, separate wavelength components to be reflectively focussed by the diffractive element 1. Accordingly, Bittner fails to disclose the reflectively focusing step as set forth in claim 89.

Not only does Bittner fail to disclose either the diffracting step or the reflectively focusing step as set forth in claim 89, but Machler et al. fails to correct these deficiencies. Consider the disclosure of Figure 3c and Figure 4a, which were applied by the examiner. Figure 3c discloses a curved grating 33 mounted on a transparent body 31. Light enters the

transparent body 31, diverges from the entry slit 34, diffracts from the curved grating 33, and converges onto diode array 35. Figure 4a of Machler et al., which is functionally similar to Figure 3c, discloses a curved grating 43 mounted on a transparent body 41. Light enters the transparent body 11, diverges from the entry slit, diffracts from the curved grating 43, and converges onto the diode array. Because the diffracted light disclosed in these figures converges rather than diverges, these figures neither teach nor suggest diffracting into "divergent, separated wavelength components" or "reflectively focusing the divergent, separated wavelength components" as recited in claim 89. Since claim 89 is patentable over Bittner and Machler et al. fails to make up for the deficiencies of Bittner, the proposed combination fails to render claim 89 obvious.


Conclusion

In view of the amendments and reasons provided above, applicants believe that all pending claims are in condition for allowance. The examiner is specifically requested to withdraw the finality of the Office action and issue a new action responsive to applicants' traversal of the rejection of claim 89, or in the alternative to withdraw the rejection of claim 89 in view of applicants' traversal and issue a Notice of Allowance. If a telephone conference would be helpful in resolving any issues concerning this communication, please contact the undersigned at (952) 253-4135.

Respectfully submitted,

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